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EXAMINER

MERCADO, J

ART UNIT

PAPER NUMBER

1745

DATE MAILED:

10/11/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/448,144

Applicant(s)

Salt u

Examiner
Julian A Mercad

Art Unit
1745



— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on Aug 21, 2001

2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-16 is/are pending in the application.

4a) Of the above, claim(s) 6-15 is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-5 and 16 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirements.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)

18) ☐ Interview Summary (PTO-413) Paper No(s). _____

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

19) ☐ Notice of Informal Patent Application (PTO-152)

17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 3

20) ☐ Other: _____

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DETAILED ACTION

Remarks

This Office Action is responsive to Applicant's amendment filed August 21, 2001.

Applicant's election with traverse of Group II, claims 1-5 in Paper No. 5 is acknowledged.

The traversal is on the ground(s) that the Office has not shown the submitted process steps of lamination, pressing or sputtering to be materially different from the claimed process. This is not found persuasive because the skilled artisan would find obvious that such processes are materially different from the processes claimed by Applicant. For example, sputtering requires a mutually opposite cathode and anode with a glow discharge therebetween, whereas chemical evaporation does not. Often the solid-state target material is made cathodic, which is clearly materially different from the vapor-deposited material in CVD.

Additionally, the examiner notes that both the product and method claims have been amended substantially of broader scope as compared to those originally present in the Application. The product as claimed, even more so now, is hereby shown to be made by another materially different process such as one that employs ion deposition sputtering and electroplating, as shown by U.S. Pat. 6,090,228 to Hwang *et al.*

As to the Office not showing that a burden exists, searching both inventions would be an undue burden to the examiner as they have each acquired a separate status in the art as shown by

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their different classifications, consequently, the search required for Group I is not required for Group II.

The requirement is still deemed proper and is therefore made FINAL.

Claims 6-15 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention, the requirement having been traversed in Paper No. 5.

The examiner gratefully acknowledges Applicant's pointing out that claim 6 is more properly grouped with Group I, drawn to the process of making.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 3 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 3 recites the peeling resistance layer and corrosion resistance layer made as one layer. However, while the specification provides literal support for the claim language at page 27, the specification does not enable the skilled artisan how to make the discrete layers as one combined layer.

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In the event of an oversight by the examiner, clarification is requested in response to this Office Action.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "low resistance" in claim 1 is a relative term which renders the claim indefinite. The term "low resistance" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claims 2 and 3 each also recite the term "low resistance" and are thus rejected under the same grounds.

Claim 3 recites a combined layer for the peeling resistance layer and corrosion resistance layer. The specification has been reviewed in an attempt to breathe life into this limitation, however, it is unclear if both layers become coextensive, or if the layers are modified in such a way that the mutual boundaries between the layers diminish.

The term "low contact resistance" in claim 5 is a relative term which renders the claim indefinite. The term "low contact resistance" is not defined by the claim, the specification does

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not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being dependent upon a rejected base claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1, 4, 5 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Hwang *et al* (U.S. Pat. 6,090,228).

Hwang teaches a separator for a proton exchange fuel cell having a separator substrate such as stainless-steel, on which a multi-coating layer such as nickel and aluminum is formed thereon. (Figure 2) The nickel is specifically disclosed to be a corrosion-protecting layer. A peeling resistance layer such as silver is also disclosed. (Col. 3 line 42 *et seq*)

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Of note, although the process by which the separator is prepared has not been given patentable weight, Hwang teaches a plating process such as electroplating, which is capable of forming a thin film on the separator. (Col. 6 line 42 *et seq*)

Claims 1, 4, 5 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Hiermaier *et al* (WO98/04012, U.S. Pat. 6,153,324 relied upon as an equivalent)

Hiermaier teaches a separator for a proton exchange fuel cell having a substrate such as stainless-steel, on which a multi-coating layer such as Ag, Au, Cu or Ni is formed thereon. To the extent that the claims are understood by the examiner for reasons discussed under 35 U.S.C. 112, second paragraph (discussion above), the multi-coating layer is reasonably presumed to be of low contact resistance since the materials disclosed for the multi-coating layer are the same as that claimed by Applicant.

Of note, although the process by which the separator is prepared has not been given patentable weight, Hiermaier teaches a plating process for forming a thin film on the separator. (Col. 1 line 42 *et seq*)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiermaier *et al* in view of Hwang *et al*.

The teachings of Hiermaier and Hwang are discussed above.

Hiermaier does not explicitly teach a peeling resistance layer. However, the skilled artisan would have found obvious that the Ag layer disclosed by Hiermaier prevents peeling since it is specifically disclosed to prevent oxide formation at the grain boundaries by functioning as a barrier layer. Thus, less oxide formation is achieved and exposure to corrosion is minimized.

Additionally, Hwang is relied upon to show that Ag has the desired property of being a bonding material. (Hwang, col. 3 line 57 *et seq*) Thus, the skilled artisan would have found obvious that the Ag layer in Hiermaier would naturally flow to have a peeling resistance property.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang *et al* in view of Hiermaier *et al*.

The teachings of Hwang and Hiermaier are discussed above.

To the extent that the claims are understood by the examiner for reasons discussed under 35 U.S.C. 112, first and second paragraph (discussion above), Hwang is considered to teach a combined peeling resistance layer and corrosion resistance layer. (Col. 4 line 17 *et seq*) Note the specific disclosure of a nickel-aluminum coated layer in singular. As to a low electric resistance layer thereon, Hiermaier is relied upon to show an additional layer with low electric resistance,

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i.e. good electrical conductivity. (Col. 3 line 33 *et seq*, col. 4 line 39 *et seq*) Thus, the skilled artisan would have found obvious to modify Hwang's invention by employing a low electric resistance layer for reasons such as optimizing the current flow between two fuel cells connected in series.

Conclusion

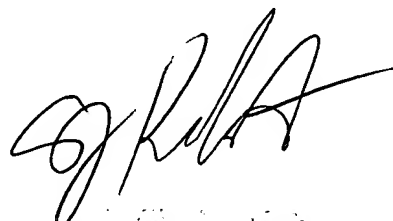
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 5,939,219 to Jansing *et al* and U.S. Patent 6,103,413 to Hinton *et al* are cited of general interest.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian A. Mercado whose telephone number is (703) 305-0511.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gabrielle Brouillette, can be reached at (703) 308-0756. The official fax phone number for the organization where this application or proceeding is assigned is (703) 305-3599. The unofficial fax number is (703) 306-3429.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

jam/October 9, 2001


1700